

AG Technology: Farming and Ranching For A Future

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I would like to thank everyone for having me here today and giving me the opportunity to address the changes being made in the world of agricultural technology.

If the current farming and ranching system of the world is going to feed a growing population while at the same time decreasing its environmental footprint, new innovations in technology will clearly play a major role.

In the fast changing world of agriculture, aerial crop management, autonomous pest control, automated planting, and monitoring time are the pathways to the future.

Advancement in Unmanned Aerial Vehicle technology is going to play a massive role in the future of agriculture. There are UAVs that have been developed to take thousands of photos from a variety of heights and angles to compile extremely detailed 3-D maps and time-series animations of crops. These can be used to precisely measure growth rates, along with detecting areas in need of irrigation, fertilizer, and pest control.

UAVs can also be used to assess crop and herd health, and apply spray much faster and more accurately than traditional machinery while using a fraction of the chemicals required to be effective. This method is both cost effective for the farmer and minimizes pollution of the surrounding environment.

Researchers at the University of Sydney's Center for Field Robotics have developed RIPPA(Robot for Intelligent Perception and Precision Application).

RIPPA targets plants and weeds with a micro-dose of directed liquid. This strategy is just as, or if not more, effective than traditional spraying techniques. RIPPA and other similar autonomous spraying robots use 99.9% less herbicide than is used in blanket spraying.

Researchers at Harper Adams University in the United Kingdom took it one step further. They developed a prototype weed control robot that does away with chemicals altogether. The Hyperweeder uses cameras and pattern recognition software to identify 26 different species of weeds. It then strikes the stem of the weed with a laser, heating it up to 95 degrees Celsius, or 203 degrees Fahrenheit, which results in the weed dying or going dormant.

UAVs, Rippa, the Hyperweeder, and so many other recent developments in Agricultural related technologies are just the beginning. It is exhilarating to imagine what technologies will be developed, and even become mainstream, in the near future.

Driverless equipment has steadily developed over the years with an emphasis on agricultural equipment. With the sophisticated software available like GPS systems, radars and sensors, farmers will soon be able to allow robots and technology to handle the area of running equipment. This will reduce pressure on an already shorthanded workforce which will in turn allow more cropland to be worked at greater yields and lower costs more efficiently.

Conventional crop health monitoring methods are incredibly time-consuming and often times inaccurate when considering large areas

of land.

Automated detection and control technologies have been developed such as a special imaging system called hyperspectral imaging. This system combined with 3D laser scanning, will give farmers the ability to produce a greater quantity of information down to the level of condition of every single plant along with the use of microscopic data collection.

Agriculture is not the only area that has made great advancements, beef and dairy producers are gaining the rewards also.

A special electronic ID collar developed to track a dairy cow can gather a broad range of vital information from how many times she chews in a day to the volume of milk produced.

Pedometers have also been developed especially for cows that track the number of steps that they take in a day and also send an electronic warning to the producer if there is a potential health problem.

A computer helps the rancher keep up to the minute reports on their cattle's health to deliver a precise diet and allow them more time for other important tasks.

With advancements in cattle related technology, health issues can be detected early, more efficient feeding plans can be implemented, and milk protein monitoring can allow for a targeted feed type. All of these help in reaching the goal of becoming a more sustainable and profitable industry.

Advances in Agricultural Technology are paving the way for a more productive, sustainable, autonomous and Eco-friendly future in

farming and ranching. Changes are being made at such a fast rate that what we are seeing this year will quite possibly be replaced by next year.

In order to stay prosperous and ahead in developments, constant research must be done. Education plays a key role in being able to change with the times and decide what programs are best suited for your individual operation.

Thank you very much for this opportunity to address the fast changing world of agricultural technology.!!!